



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN re application:

Yasuyuki Kamijo et al

Serial No. 10/730,006

Filed: December 9, 2003

For: PROCESS FOR PREPARING MECHANICAL PULPS HAVING HIGH
BRIGHTNESS

DECLARATION UNDER 37 CFR 1.132

Honorable Commissioner for Patents

U.S. Patent and Trademark Office

Customer Service Window

Randolph Building, Mail Stop

401 Dulany Street

Alexandria, VA 22314

Sir:

I, Yasuyuki KAMIJO, a Japanese citizen, hereby declare and state that I played a leading role in carrying out the comparative experiments described in this declaration.

I declare that I passed through the Faculty of Engineering, Kyushu University in March 1996, majoring in synthetic chemistry.

I also declare that I have been employed by Nippon Paper

Industries Co., Ltd., the Assignee of this application, since April 1996, and that I now work as a Chief Scientist for the Pulp and Paper Research Laboratory.

I declare further that I am an inventor of the subject application and that I am familiar with the subject matter contained therein.

I declare further that the following comparative experiments were conducted under my supervision and that the test results are true and correct to the best of my knowledge.

COMPARATIVE EXPERIMENTS

The following reference experiment was conducted:

Reference Example 1

The same treatment and measurement as described in Example 1 were performed, except that a chemical agent comprising 1.5% of sodium hydroxide, 1.3% of sodium silicate, 0.10% of diethylenetriaminepentaacetic acid (DTPA) and 1.8% of hydrogen peroxide is added to Douglas fir chips based on bone dry weight of chips and the pH is adjusted to be 12.0. The brightness of the pulp was measured.

Table 1

	Wood type	Impregnating agent	% Added	Initial pH	Final pH	Brightness% before bleaching	Brightness% after bleaching
Example 1	Douglas fir	NaOH	1.50	13.4	13.2	20.5	31.4
Example 2	Douglas fir	NaOH	0.50	13.0	12.6	23.6	32.5
Example 3	Douglas fir	NaOH	0.10	12.4	11.1	27.3	36.2
Example 4	Douglas fir	NaOH	0.05	11.9	10.0	27.0	45.1
Example 5	Douglas fir	NaOH	0.01	11.4	7.6	34.4	48.1
Example 6	Douglas fir	NaOH	0.01	10.0	5.7	35.6	47.5
Example 7	Douglas fir	NaOH	0.01	9.4	5.3	34.9	47.1
Example 8	Douglas fir	NaOH	0.01	8.2	5.2	35.8	45.6
Example 9	Douglas fir	DTPA	0.50	11.9	10.4	32.0	50.7
Example 10	Douglas fir	DTPA	0.20	11.3	9.4	31.5	50.7
Example 11	Douglas fir	DTPA	0.10	11.3	8.9	35.8	50.5
Example 12	Douglas fir	DTPA	0.10	8.8	6.3	36.5	48.5
Example 13	Douglas fir	DTPA	0.10	7.1	5.7	34.9	46.2
Comparative example 1	Hemlock /Pine	-	-	-	-	37.0	43.2
Comparative example 2	Douglas fir	-	-	-	-	38.1	41.2
Comparative example 3	Douglas fir	Dilute H ₂ SO ₄	-	2.5	2.7	33.5	42.7
Comparative example 4	Douglas fir	H ₂ O	-	7.2	5.0	31.5	42.7
Reference example 1	Douglas fir	DTPA	0.2	12.0	8.7		46.0
		NaOH	1.2				
		Na ₂ SiO ₃	1.3				
		H ₂ O ₂	1.8				

Conclusion

The brightness of the pulp produced in accordance with Reference Example 1 is lower than that of the pulp produced by Examples 9-13 in which chips are impregnated with a chemical agent containing a chelating agent only. In other words, the pulp produced from chips impregnated with a chemical agent containing a chelating agent and hydrogen peroxide, as in U.S. Patent No. 4,486,267 is more difficult to bleach than that produced from chips impregnated with a chemical agent containing a chelating agent only.

I declare further that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patents issued therein.

Dated this 26th day of December 2006


Yasuyuki KAMIJO